FILE 'MEDLINE' ENTERED AT 16:13:35 ON 25 JAN 2000

L11 ANSWER 1 OF 1 MEDLINE
AN 96071635 MEDLINE
DN 96071635
TI ***Discovery*** of ***betulinic*** ***acid*** as a selective inhibitor of human melanoma that functions by induction of apoptosis.
AU Pisha E; Chai H; Lee I S; Chagwedera T E; Farnsworth N R; Cordell G A; Beecher C W; Fong H H; Kinghorn A D; Brown D M; et al
CS Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago 60612, USA.
NC U01 CA 52956 (NCI)
SO NATURE MEDICINE, (1995 Oct) 1 (10) 1046-51.
Journal code: CG5. ISSN: 1078-8956.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199603
AB As a result of bioassay-guided fractionation, betulinic acid, a pentacyclic triterpene, was identified as a melanoma-specific cytotoxic agent. In follow-up studies conducted with athymic mice carrying human melanomas, tumour growth was completely inhibited without toxicity. As judged by a variety of cellular responses, antitumour activity was mediated by the induction of apoptosis. Betulinic acid is inexpensive and available in abundant supply from common natural sources, notably the bark of white birch trees. The compound is currently undergoing preclinical development for the treatment or prevention of malignant melanoma.

Reg 1/25

=> file ca

=> e betulinol

E1 3 BETULINE/BI
E2 518 BETULINIC/BI
E3 40 --> BETULINOL/BI
E4 7 BETULINS/BI
E5 2 BETULINUM/BI
E6 54 BETULINUS/BI
E7 2 BETULINYL/BI
E8 1 BETULISA/BI
E9 3 BETULLA/BI
E10 1 BETULO/BI
E11 11 BETULOIDES/BI
E12 1 BETULOL/BI

=> s e1-e4

3 BETULINE/BI
518 BETULINIC/BI
40 BETULINOL/BI
7 BETULINS/BI
L1 562 (BETULINE/BI OR BETULINIC/BI OR BETULINOL/BI OR BETULINS/BI)

=> s ether# or diether#

282088 ETHER#
1746 DIETHER#
L2 282701 ETHER# OR DIETHER#

=> s l1(10a)l2

L3 6 L1(10A)L2

=> d bib,kwic

L3 ANSWER 1 OF 6 CA COPYRIGHT 2000 ACS
AN 131:226125 CA

TI Zatatriol. A new aromatic constituent from Zataria multiflora
AU Ali, Muhammad Shaiq; Saleem, Muhammad; Ahmad, Viqar Uddin
CS H. E. J. Research Institute Chemistry, Univ. Karachi, Karachi, 75270, Pak.
SO Z. Naturforsch., B: Chem. Sci. (1999), 54(6), 807-810
CODEN: ZNBSEN; ISSN: 0932-0776
PB Verlag der Zeitschrift fuer Naturforschung
DT Journal
LA English
AB . . . isolated from the hexane sol. part of a Lamiaceous plant Zataria multiflora. Zatatriol and some known constituents, p-cymene, thymol, thymol methyl- ***ether*** , .beta.-sitosterol, stigmasterol, oleanolic acid, ***betulinic*** acid, and hexadecanoic acid were also isolated from the same source. Structures of the isolated constituents were
elucidated with the. . .

=> d bib,kwic 2-6

L3 ANSWER 2 OF 6 CA COPYRIGHT 2000 ACS
AN 129:260594 CA
TI Process for the extraction of betulinic acid from the bark of Platanus acerifolia using middle-polar extraction solvents
IN Draeger, Birgit; Neubert, Reinhard; Galgon, Tino; Wohlrab, Wolfgang
PA Martin-Luther-Universitaet Halle-Wittenberg, Germany
SO Ger. Offen., 2 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 19713768	A1	19981008	DE 1997-19713768	19970403

PRAI DE 1997-19713768 19970403
IT 60-29-7, Diethyl ***ether*** , uses 67-66-3, Trichloromethane, uses 75-09-2, Dichloromethane, uses
RL: NUU (Nonbiological use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(extn. solvent; process for the extn. of ***betulinic*** acid from the bark of Platanus acerifolia using middle-polar extn. solvents)

L3 ANSWER 3 OF 6 CA COPYRIGHT 2000 ACS
AN 104:17690 CA
TI Chemistry of Euphorbiaceae. Part III. Isolation of lupane group triterpenes from Givotia rottleriformis Griff
AU Reddy, K. Dharma; Reddy, R. Prasad; Raj, S. K. Ram; Ravindranath, A.; Sundararamaiah, T.
CS Dep. Chem., Nizam Coll., Hyderabad, 500 001, India
SO J. Indian Chem. Soc. (1985), 62(5), 411

CODEN: JICSAH; ISSN: 0019-4522
DT Journal
LA English
AB An ***ether*** ext. of G. rottleriformis bark afforded ***betulinic*** acid, lupeol, and betulin. Identification was made by co-chromatog. (TLC) and from spectral data.

L3 ANSWER 4 OF 6 CA COPYRIGHT 2000 ACS
AN 92:211825 CA
TI The chemical constituents of Symplocus racemosa Roxb
AU De Silva, L. B.; De Silva, U. L. L.; Mahendran, M.
CS Med. Res. Inst., Colombo, 8, Sri Lanka
SO J. Natl. Sci. Counc. Sri Lanka (1979), 7(1), 1-3
CODEN: JNSCBH; ISSN: 0300-9254
DT Journal
LA English
AB Petroleum ether and ***ether*** exts. of S. racemosa afforded a high yield of ***betulinic*** acid with smaller amts. of acetyloleanolic and oleanolic acids. The cold MeOH ext. yielded ellagic acid. The structures were detd.. . .

L3 ANSWER 5 OF 6 CA COPYRIGHT 2000 ACS
AN 84:2225 CA
TI Triterpenoids of Callistemon lanceolatus leaves
AU Varma, R. S.; Parthasarathy, M. R.
CS Dep. Chem., Univ. Delhi, Delhi, India
SO Phytochemistry (1975), 14(7), 1675-6
CODEN: PYTCAS
DT Journal
LA English
AB Air-dried and powd. leaves of C. lanceolatus exhaustively extd. with petroleum ***ether*** (60-80.degree.), Me2CO, and EtOH yielded sitosterol, erythrodiol, betulin, ***betulinic*** acid, ursolic acid, and 2.alpha.-hydroxyursolic acid.

L3 ANSWER 6 OF 6 CA COPYRIGHT 2000 ACS
AN 68:19514 CA
TI Brazilian Guttiferae. X. Triterpene constituents of Clusia
AU Clemente de Araujo, Hugo; Mahajan, J. R.; Gottlieb, Otto R.; Magalhaes, Mauro T.
CS Univ. Federal Minas Gerais, Belo Horizonte, Brazil
SO Ann. Acad. Brasil. Cienc. (1966), 38(3-4), 429-30
DT Journal
LA Portuguese
AB The trunk wood of a Clusia species was shown to contain .beta.-sitosterol, .beta.-amyrin, and ***betulinic*** acid by elution with C6H6, C6H6-CHCl3, and petroleum ***ether*** , resp. The wood was previously

washed with 3% aq. NaOH to eliminate acid material.

=> d history

(FILE 'HOME' ENTERED AT 15:11:55 ON 25 JAN 2000)

FILE 'CA' ENTERED AT 15:11:59 ON 25 JAN 2000
E BETULINOL
L1 562 S E1-E4
L2 282701 S ETHER# OR DIETHER#
L3 6 S L1(10A)L2

=> s l1 or betulonic

42 BETULONIC
L4 589 L1 OR BETULONIC

=> s aldehyde#

L5 87803 ALDEHYDE#

=> s l4(10a)l5

L6 6 L4(10A)L5

=> d bib,kwic 1-6

L6 ANSWER 1 OF 6 CA COPYRIGHT 2000 ACS
AN 130:52599 CA
TI synthesis and antitumor activity of betulinol derivatives and monoclonal antibody conjugates
IN Bomshteyn, Arkadiy L.; Rathnam, Premila; Saxena, Brij B.
PA Cornell Research Foundation, Inc., USA
SO PCT Int. Appl., 56 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9855497	A1	19981210	WO 1998-US11456	19980603

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,

NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,
CM, GA, GN, ML, MR, NE, SN, TD, TG
AU 9878135 A1 19981221 AU 1998-78135 19980603
PRAI US 1997-48621 19970604
WO 1998-US11456 19980603
OS MARPAT 130:52599
IT 1721-69-3P 4439-98-9P, ***Betulonic*** ***aldehyde***
217312-62-4DP, monoclonal antibody conjugate 217312-62-4P
217312-63-5DP, monoclonal antibody conjugate 217312-63-5P
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and antitumor activity of ***betulinol*** derivs. and monoclonal antibody conjugates)

L6 ANSWER 2 OF 6 CA COPYRIGHT 2000 ACS
AN 122:310746 CA
TI Terpenoids, alkaloids and coumarins from Boronia inornata and Boronia gracilipes
AU Ahsan, Monira; Armstrong, James A.; Gray, Alexander I.; Waterman, Peter G.
CS Dep. Pharm. Sci., Univ. Strathclyde, Glasgow, G1 1XW, UK
SO Phytochemistry (1995), 38(5), 1275-8
CODEN: PYTCAS; ISSN: 0031-9422
DT Journal
LA English
AB Aerial parts and roots of Boronia inornata yielded the sesquiterpenes spathulenol and 1(10),5-germacradien-4-ol, the triterpenes moronic acid, the new moronic ***aldehyde*** , ***betulonic*** acid and lupeol, the alkaloids dictamnine, evolitrine, isodictamnine and hordenine, and 8-(3,7-dimethyl-2,6-octadienyl)-7-hydroxycoumarin. A second sample of B. inornata gave the. . . protolimonoids niloticin and piscidinol-A in addn. to all those compds. noted above. B. gracilipes yielded spathulenol, rutin and the triterpenes ***betulonic*** acid, ***betulonic*** ***aldehyde*** , oleanonic acid, 3-epioleanonic acid and oleanic ***aldehyde*** . Results are now available for investigations of species belonging to all three of the sections of Boronia and the distribution. . .

IT 153-18-4 484-29-7, Dictamnine 484-74-2, Isodictamnine 523-66-0, Evolitrine 539-15-1, Hordenine 545-47-1, Lupeol 4439-98-9, ***Betulonic*** ***aldehyde*** 4481-62-3, Betulonic acid 6713-27-5, Moronic acid 6750-60-3, Spathulenol 17990-42-0, Oleanonic acid 23660-05-1 25499-90-5, 3-Epioleanolic acid 33608-08-1
74841-87-5 100198-09-2, Piscidinol-A 115404-57-4, Niloticin
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(from Boronia inornata and B. gracilipes)

L6 ANSWER 3 OF 6 CA COPYRIGHT 2000 ACS
AN 121:276719 CA
TI Potential allelopathic lupane triterpenes from bioactive fractions of Melilotus messanensis
AU Macias, Francisco A.; Simonet, Ana M.; Esteban, M. Dolores
CS Fac. Ciencias, Univ. Cadiz, Cadiz, 11510, Spain
SO Phytochemistry (1994), 36(6), 1369-79
CODEN: PYTCAS; ISSN: 0031-9422
DT Journal
LA English
AB . . . messanensis (sweet clover) afforded, from the medium polar bioactive fractions, in addn. to the known lupane triterpenes lupeol, betulin, betulin ***aldehyde*** , and ***betulinic*** acid, the new norlupane messagenin (I, 30-norlupane-3.beta.,28-diol-20-one) which have been tested as allelochems. Structures and their stereochems. were elucidated by. . .

L6 ANSWER 4 OF 6 CA COPYRIGHT 2000 ACS
AN 114:98300 CA
TI Composition of the triterpene fraction of outer bark extracts of Betula pendula and Betula pubescens
AU Pokhilo, N. D.; Makhnev, A. K.; Demenkova, L. I.; Uvarova, N. I.
CS Tikhookean. Inst. Bioorg. Khim., Vladivostok, USSR
SO Khim. Drev. (1990), (6), 74-7
CODEN: KHDRDQ; ISSN: 0201-7474
DT Journal
LA Russian
AB . . . in Mar.-Dec., contained 31.9-42.1% CHCl3-ext. which contained betulin (I) 15.3-67.6, lupeol (II) 1.15-2.91, betulinic (III) + oleanolic acids (1:2-7:2) 5.7-21.2, ***betulinic*** + oleanolic ***aldehydes*** (1:2-2:1) traces-1.43, oleanolic acid acetate (IV) 0.58-3.9, erythrodiol 1.0-3.2, and .beta.-sitosterol traces-0.74%. B. pendula bark contained 31.8-33.0% ext. which contained. . .
IT 83-46-5 508-02-1 545-48-2, Erythrodiol 13159-28-9, ***Betulinic*** ***aldehyde*** 17020-22-3, Oleanolic aldehyde
RL: BIOL (Biological study)
(from Betula pubescens bark)

L6 ANSWER 5 OF 6 CA COPYRIGHT 2000 ACS
AN 106:153022 CA
TI The composition of the outer bark of Betula mandschurica
AU Kochergina, T. Yu.; Malinovskaya, G. V.; Pokhilo, N. D.; Denisenko, V. A.; Uvarova, N. I.
CS Tikhookeam. Inst. Bioorg. Khim., Vladivostok, USSR
SO Khim. Prir. Soedin. (1986), (5), 647-8
CODEN: KPSUAR; ISSN: 0023-1150

DT Journal
LA Russian
AB . . . were isolated from the outer bark of B. mandschurica, including lupeol, oleanolic acid acetate, .beta.-sitosterol, betulin, oleanolic acid, betulin caffeate, ***betulinic*** ***aldehyde*** , and 3.beta.-acetyl-11.alpha.,12.alpha.-epoxyolean-13,28-olide. The latter 3 were identified by physicochem. and spectral characteristics.
IT 83-46-5, .beta.-Sitosterol 473-98-3, Betulin 508-02-1, Oleanolic acid 545-47-1, Lupeol 4339-72-4, Oleanolic acid acetate 13159-28-9, ***Betulinic*** ***aldehyde*** 89130-86-9
RL: BIOL (Biological study)
(of Betula mandschurica outer bark)

L6 ANSWER 6 OF 6 CA COPYRIGHT 2000 ACS
AN 95:150946 CA
TI Triterpenes in organ pipe cactus
AU Kircher, Henry W.
CS Dep. Nutr. Food Sci., Univ. Arizona, Tucson, AZ, 85721, USA
SO Phytochemistry (1980), 19(12), 2707-12
CODEN: PYTCAS; ISSN: 0031-9422
DT Journal
LA English
AB . . . their structures were detd. by spectral methods. They were arranged in a biosynthetic scheme based on the degree of oxidn. ***Betulinic*** ***aldehyde*** I (R = OH, R1 = R3 = H, R2 = CHO) and oleanolic aldehydes II (R = OH, R1. . .
ST Stenocereus lupene oleanene structure; ***betulinic*** ***aldehyde*** ; oleanolic aldehyde

=> s ?peptide? or protein? or antibody or antibodies

387437 ?PEPTIDE?
1235224 PROTEIN?
187370 ANTIBODY
196212 ANTIBODIES
L7 1569404 ?PEPTIDE? OR PROTEIN? OR ANTIBODY OR ANTIBODIES

=> d history

(FILE 'HOME' ENTERED AT 15:11:55 ON 25 JAN 2000)

FILE 'CA' ENTERED AT 15:11:59 ON 25 JAN 2000
E BETULINOL
L1 562 S E1-E4
L2 282701 S ETHER# OR DIETHER#

L3 6 S L1(10A)L2
L4 589 S L1 OR BETULONIC
L5 87803 S ALDEHYDE#
L6 6 S L4(10A)L5
L7 1569404 S ?PEPTIDE? OR PROTEIN? OR ANTIBODY OR ANTIBODIES

=> s l4(P)l7

L8 9 L4(P)L7

=> d bib,kwic

L8 ANSWER 1 OF 9 CA COPYRIGHT 2000 ACS
AN 131:111059 CA
TI ***Betulinic*** acid-induced apoptosis in glioma cells: a sequential requirement for new ***protein*** synthesis, formation of reactive oxygen species, and caspase processing
AU Wick, Wolfgang; Grimmel, Cornelia; Wagenknecht, Bettina; Dichgans, Johannes; Weller, Michael
CS Laboratory of Molecular Neuro-Oncology, Department of Neurology, School of Medicine, University of Tubingen, Tubingen, Germany
SO J. Pharmacol. Exp. Ther. (1999), 289(3), 1306-1312
CODEN: JPETAB; ISSN: 0022-3565
PB American Society for Pharmacology and Experimental Therapeutics
DT Journal
LA English
TI ***Betulinic*** acid-induced apoptosis in glioma cells: a sequential requirement for new ***protein*** synthesis, formation of reactive oxygen species, and caspase processing
AB ***Betulinic*** acid (BA), a pentacyclic triterpene, is an exptl. cytotoxic agent for malignant melanoma. Here, we show that BA triggers apoptosis in five human glioma cell lines. BA-induced apoptosis requires new ***protein*** , but not RNA, synthesis, is independent of p53, and results in p21 ***protein*** accumulation in the absence of a cell cycle arrest. BA-induced apoptosis involves the activation of caspases that cleave poly-(ADP ribose)polymerase.. . . pairs of the CD95/CD95 ligand family do not mediate BA-induced caspase activation. BA enhances the levels of BAX and BCL-2 ***proteins*** but does not alter the levels of BCL-xS or BCL-xL. Ectopic expression of BCL-2 prevents BA-induced caspase activation, DNA fragmentation,. . . that are essential for BA-triggered cell death. The generation of reactive oxygen species is blocked by BCL-2 and requires new ***protein*** synthesis but is unaffected by caspase inhibitors, suggesting that BA toxicity sequentially involves new ***protein*** synthesis, formation of reactive oxygen species, and activation of crm-A-insensitive caspases.
ST ***betulinic*** acid apoptosis glioma ***protein*** synthesis;

caspase oxygen species ***betulinic*** acid glioma
IT Cell cycle
(arrest; ***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)
IT Apoptosis
Glioma inhibitors
Translation (genetic)
(***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)
IT Bax ***protein***
Bcl-x ***protein***
Reactive oxygen species
bcl-2 ***protein***
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)
IT Fas ligand
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)
IT p21CIP1/WAF1 ***protein***
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)
IT p53 (***protein***)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)
IT 472-15-1, ***Betulinic*** acid
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)
IT 186322-81-6, Caspase
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)
IT 9055-67-8, Poly-(ADP ribose)polymerase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(***betulinic*** acid-induced apoptosis in glioma cells: role of ***protein*** synthesis, reactive oxygen species, and caspase)

=> d bib,kwic 2-9

L8 ANSWER 2 OF 9 CA COPYRIGHT 2000 ACS
AN 130:52599 CA
TI synthesis and antitumor activity of * *betulinol*** derivatives and monoclonal ***antibody*** conjugates
IN Bomshteyn, Arkadiy L.; Rathnam, Premila; Saxena, Brij B.
PA Cornell Research Foundation, Inc., USA
SO PCT Int. Appl., 56 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9855497	A1	19981210	WO 1998-US11456	19980603
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9878135	A1	19981221	AU 1998-78135	19980603

PRAI US 1997-48621 19970604
WO 1998-US11456 19980603
OS MARPAT 130:52599
TI synthesis and antitumor activity of ***betulinol*** derivatives and monoclonal ***antibody*** conjugates
AB Syntheses of ***betulinol*** derivs. (I) (X, Y1 = independently OH, alkoxy, alkanoyloxy, - ***peptide*** -NHNH-C(O)- ***antibody*** -OH moiety) and ***betulinol*** - ***antibody*** conjugates (II) (A1 = I- ***peptide*** -NHN=CH, I- ***peptide*** -NHNH) are disclosed.
ST ***betulinol*** ***peptide*** monoclonal ***antibody*** conjugates prepn
IT Antitumor agents
(synthesis and antitumor activity of ***betulinol*** derivs. and monoclonal ***antibody*** conjugates)
IT Monoclonal ***antibody*** conjugates
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and antitumor activity of ***betulinol*** derivs. and monoclonal ***antibody*** conjugates)
IT 1721-69-3P 4439-98-9P, ***Betulonic*** aldehyde 217312-62-4DP, monoclonal ***antibody*** conjugate 217312-62-4P 217312-63-5DP, monoclonal ***antibody*** conjugate 217312-63-5P
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic

preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and antitumor activity of **betulinol*** derivs. and monoclonal ***antibody*** conjugates)
IT 473-98-3, ***Betulinol*** 99933-15-0 148134-13-8 148134-13-8D, monoclonal ***antibody*** conjugate 217312-61-3
RL: RCT (Reactant)
(synthesis and antitumor activity of ***betulinol*** derivs. and monoclonal ***antibody*** conjugates)

L8 ANSWER 3 OF 9 CA COPYRIGHT 2000 ACS
AN 129:118645 CA
TI Induction of p53 without increase in p21WAF1 in betulinic acid-mediated cell death is preferential for human metastatic melanoma
AU Rieber, Manuel; Rieber, Mary Strasberg
CS IVIC, Tumor Cell Biology Lab., Caracas, 1020 A, Venez.
SO DNA Cell Biol. (1998), 17(5), 399-406
CODEN: DCEBE8; ISSN: 1044-5498
PB Mary Ann Liebert, Inc.
DT Journal
LA English
IT Rb ***protein***
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(cyclins D1 and D3 and phosphorylated Rb decreased in melanoma cells exposed to ***betulinic*** acid; induction of p53 without increase in p21WAF1 in ***betulinic*** acid-mediated cell death is preferential for human metastatic melanoma)
IT p53 (***protein***)
RL: BOC (Biological occurrence); BPR (Biological process); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(induction of p53 without increase in p21WAF1 in ***betulinic*** acid-mediated cell death is preferential for human metastatic melanoma)
IT p21CIP1/WAF1 ***protein***
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(induction of p53 without increase in p21WAF1 in ***betulinic*** acid-mediated cell death is preferential for human metastatic melanoma)

L8 ANSWER 4 OF 9 CA COPYRIGHT 2000 ACS
AN 128:162486 CA
TI Plant-derived leading compounds for chemotherapy of human immunodeficiency virus (HIV) infection
AU Vlietinck, A. J.; De Bruyne, T.; Apers, S.; Pieters, L. A.
CS Department Pharmaceutical Sciences, University Antwerp, Antwerp, B-2610, Belg.
SO Planta Med. (1998), 64(2), 97-109
CODEN: PLMEAA; ISSN: 0032-0943

PB Georg Thieme Verlag
DT Journal; General Review
LA English
AB . . . acid derivs.), tannins, and triterpenes (glycyrrhizin and analogs, soyasaponin and analogs). (2) Virus-cell fusion: lectins (mannose- and N-acetylglucosamine-specific) and triterpenes (***betulinic*** acid and analogs). (3) Reverse transcription: alkaloids (benzophenanthridines, protoberberines, isoquinolines, quinolines), coumarins (calanolides and analogs), flavonoids, phloroglucinols, lactones (protolichesterinic acid),. . . (4) Integration: coumarins (3-substituted-4-hydroxycoumarins), depsidones, O-caffeoyl derivs., lignans (arctigenin and analogs), and phenolics (curcumin). (5) Translation: single chain ribosome inactivating ***proteins*** (SCRIP's). (6) Proteolytic cleavage (protease inhibition): saponins (ursolic and maslinic acids), xanthones (mangostin and analogs), and coumarins. (7) Glycosylation: alkaloids. . .

L8 ANSWER 5 OF 9 CA COPYRIGHT 2000 ACS
AN 128:43516 CA
TI Betulinic acid triggers CD95 (APO-1/Fas)- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors
AU Fulda, Simone; Friesen, Claudia; Los, Marek; Scaffidi, Carsten; Mier, Walter; Benedict, Mary; Nunez, Gabriel; Krammer, Peter H.; Peter, Marcus E.; Debatin, Klaus-Michael
CS Division of Hematology/Oncology, German Cancer Research Center, University Children's Hospital and Division of Molecular Oncology, Heidelberg, D-69120, Germany
SO Cancer Res. (1997), 57(21), 4956-4964
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English
AB ***Betulinic*** acid (BA), a melanoma-specific cytotoxic agent, induced apoptosis in neuroectodermal tumors, such as neuroblastoma, medulloblastoma, and Ewing's sarcoma, representing the. . . the one previously identified for std. chemotherapeutic drugs. BA-induced apoptosis was independent of CD95-ligand/receptor interaction and accumulation of wild-type p53 ***protein*** , but it critically depended on activation of caspases (interleukin 1.beta.-converting enzyme/Ced-3-like proteases). FLICE/MACH (caspase-8), considered to be an upstream protease. . . and the downstream caspase CPP32/YAMA/Apopain (caspase-3) were activated, resulting in cleavage of the prototype substrate of caspases PARP. The broad-spectrum ***peptide*** inhibitor benzyloxycarbonyl-Val-Ala-Asp-fluoromethylketone, which blocked cleavage of FLICE and PARP, also completely abrogated BA-triggered apoptosis. Cleavage of caspases was preceded by. . . nuclear fragmentation. This suggested that mitochondrial alterations were

involved in BA-induced activation of caspases. Furthermore, Bax and Bcl-xs, two death-promoting ***proteins*** of the Bcl-2 family, were up-regulated following BA treatment. Most importantly, neuroblastoma cells resistant to CD95- and doxorubicin-mediated apoptosis were. . .

IT Bcl-x ***protein***
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(Bcl-xL; ***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT Bcl-x ***protein***
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(Bcl-xs; ***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT Sarcoma inhibitors
(Ewing's; ***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT Antitumor agent resistance
Apoptosis
Mitochondria
Neuroblastoma inhibitors
(***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT Bax ***protein***
Fas antigen
Fas ligand
bcl-2 ***protein***
p53 (***protein***)
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT Reactive oxygen species
RL: BPR (Biological process); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(generation; ***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT Ewing's sarcoma

Medulloblastoma
(inhibitors; ***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT Brain tumor inhibitors
(medulloblastoma; ***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT 169592-56-7, Caspase 3 179241-78-2, Caspase 8
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BIOL (Biological study); PROC (Process)
(***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT 472-15-1, ***Betulinic*** acid
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT 122191-40-6, Interleukin 1.beta.-converting enzyme
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

IT 9055-67-8, Poly(ADP-ribose)polymerase
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(cleavage of; ***betulinic*** acid triggers CD95 APO-1/Fas- and p53-independent apoptosis via activation of caspases in neuroectodermal tumors in relation to Bcl-2 family ***proteins*** expression and mitochondrial dysfunction and resistance)

L8 ANSWER 6 OF 9 CA COPYRIGHT 2000 ACS
AN 128:139 CA
TI Resistance to a drug blocking human immunodeficiency virus type 1 entry (RPR103611) is conferred by mutations in gp41
AU Labrosse, Beatrice; Pleskoff, Olivier; Sol, Nathalie; Jones, Christophe; Henin, Yvette; Alizon, Marc
CS INSERM, Institut Cochin de Genetique Moleculaire, Paris, 75014, Fr.
SO J. Virol. (1997), 71(11), 8230-8236
CODEN: JOVIAM; ISSN: 0022-538X
PB American Society for Microbiology

DT Journal
LA English
AB A triterpene derived from ***betulinic*** acid (RPR103611) blocks human immunodeficiency virus type 1 (HIV-1) infection and fusion of CD4+ cells with cells expressing HIV-1 envelope ***proteins*** (gp120 and gp41), suggesting an effect on virus entry. This compd. did not block infection by a subtype D HIV-1 strain (NDK) or cell-cell fusion mediated by the NDK envelope ***proteins*** . The genetic basis of drug resistance was therefore addressed by testing envelope chimeras derived from NDK and a drug-sensitive HIV-1. . . can affect the quaternary structure of gp120 and gp41 and the accessibility of gp120 to antiviral agents such as neutralizing ***antibodies*** . However, a direct effect of RPR103611 on a gp41 target must also be envisioned, in agreement with the blocking of. . .

L8 ANSWER 7 OF 9 CA COPYRIGHT 2000 ACS
AN 124:82138 CA
TI Selective inhibition of cyclic AMP-dependent protein kinase by amphiphilic triterpenoids and related compounds
AU Wang, Bing Hui; Polya, Gideon M.
CS Department Chemistry, La Trobe University, Bundoora, 3083, Australia
SO Phytochemistry (1996), 41(1), 55-63
CODEN: PYTCAS; ISSN: 0031-9422
DT Journal
LA English
IT 77-52-1, Ursolic acid 80-97-7, Dihydrocholesterol 81-23-2, Dehydrocholic acid 81-24-3, Taurocholic acid 81-25-4, Cholic acid 83-44-3, Deoxycholic acid 106-02-5, 15-Pentadecanolide 106-14-9, 12-Hydroxystearic acid 111-16-0, Pimelic acid 123-99-9, Azelaic acid, biological studies 434-13-9, Lithocholic acid 464-92-6, Asiatic acid
471-53-4, 18.beta.-Glycyrrhetinic acid 472-15-1, ***Betulinic*** acid 473-98-3, Betulin 474-25-9, Chenodeoxycholic acid 475-31-0, Glycocholic acid 505-48-6, Suberic acid 508-02-1, Oleanolic acid 508-52-1, Ouabagenin 516-35-8, Taurochenodeoxycholic acid 516-50-7, Taurodeoxycholic acid 545-46-0, Uvaol 630-60-4, Ouabain 640-79-9, Glycochenodeoxycholic acid 1166-52-5, Laurylgallate 1249-75-8,
Lithocholic acid methyl ester 1405-86-3 1448-36-8, Cholic acid methyl ester 1449-05-4, 18.alpha.-Glycyrrhetinic acid 1679-53-4,
10-Hydroxydecanoic acid 5255-17-4 10325-79-8 16830-15-2,
Asiaticoside 20231-57-6 27013-91-8, .alpha.-Hederin 27876-94-4,
Crocetin p

RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(selective inhibition of cAMP-dependent ***protein*** kinase by amphiphilic triterpenoids and related compds.)

L8 ANSWER 8 OF 9 CA COPYRIGHT 2000 ACS
AN 123:17583 CA
TI Constituents of Byrsonima crassifolia and their spasmogenic activity
AU Bejar, Ezra; Amarquaye, Ambrose; Che, Chun-tao; Malone, Marvin H.; Fong,

Harry H.S.
CS School of Pharmacy, University of the Pacific, Stockton, CA, 95211, USA
SO Int. J. Pharmacogn. (1995), 33(1), 25-32
CODEN: IJPYEW; ISSN: 0925-1618
DT Journal
LA English
AB . . . Byrsonima crassifolia, 22 compds. were isolated and identified from a MeOH ext. Among the isolates were six triterpenes (betulinaldehyde, betulin, ***betulinic*** acid, lupeol, oleanolic acid, and ursenaldehyde), two sterols (.beta.-sitosterol and its glucoside), six flavonoids (catechin, epicatechin, guaijaverin, hyperin, quercetin and its 3-O-[6"-galloyl]galactoside), an arom. ester (Me gallate), four common amino acids (alanine, aspartic acid, proline, and valine), two non- ***protein*** amino acids (pipecolic acid and 5-hydroxypipecolic acid), and a novel sulfonoglycolipid. Biol. evaluations showed that five of these compds. (betulin, ***betulinic*** acid, hyperin, quercetin, and ursenaldehyde) exhibited spasmogenic activity on isolated rat fundus, and three isolates (hyperin, pipecolic acid and 5-hydroxypipecolic. . .

L8 ANSWER 9 OF 9 CA COPYRIGHT 2000 ACS
AN 120:289424 CA
TI Anti-AIDS agents, 11. Betulinic acid and platanic acid as anti-HIV principles from Syzigium claviflorum, and the anti-HIV activity of structurally related triterpenoids
AU Fujioka, Toshihiro; Kashiwada, Yoshiki; Kilkuskie, Robert E.; Cosentino, L. Mark; Ballas, Lawrence M.; Jiang, Jack B.; Janzen, William P.; Chen, Ih Sheng; Lee, Kuo Hsiung
CS Sch. Pharm., Univ. North Carolina, Chapel Hill, NC, 27599, USA
SO J. Nat. Prod. (1994), 57(2), 243-7
CODEN: JNPRDF; ISSN: 0163-3864
DT Journal
LA English
AB ***Betulinic*** acid (I) and platanic acid, isolated from the leaves of Syzigium claviflorum, were inhibitors of HIV replication in H9 lymphocyte. . . acid group, as well as the C-19 substituents, contribute to enhanced anti-HIV activity. The inhibitory activity of these compds. against ***protein*** kinase C (PKC) was also examd., since a correlation between anti-HIV and anti-PKC activities has been suggested. However, there was. . .